NEWS

Jenks Science & Technology Forum discusses non-fossil fuels

This is excerpt text for the Jenks article Jan 4

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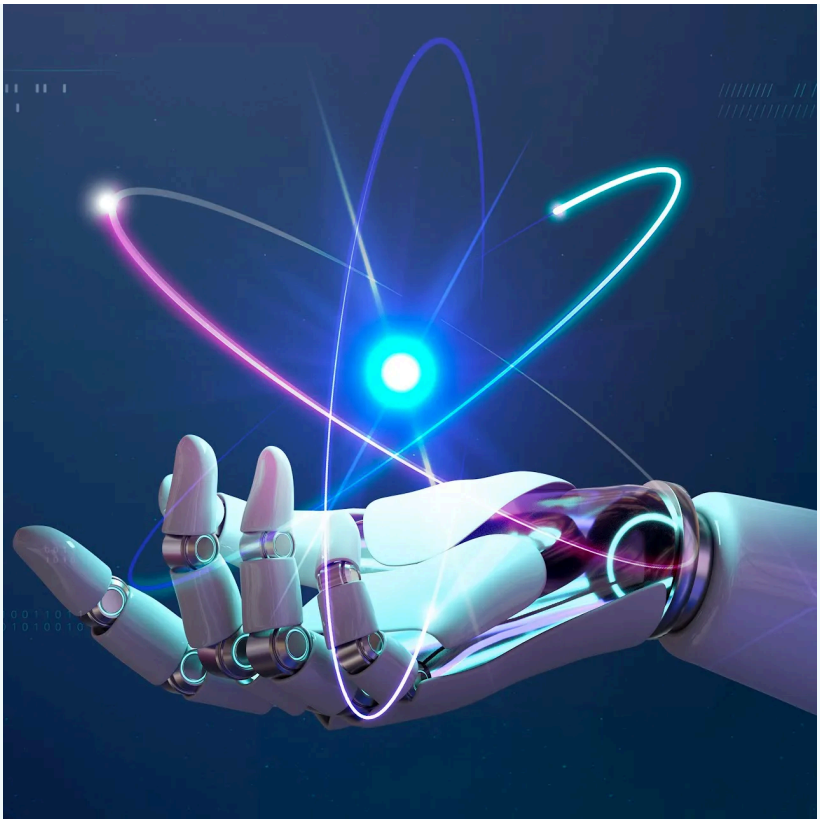

Jenks speakers offer insights on "fuels beyond fossils" and on additive manufacturing

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By Ron Latanision, John Brown, and Walter Hubbard Jan. 4, 2023

In December, the Wilson Science and Technology Forum continued its consideration of climate and energy matters with a discussion of carbon-free fuels, and we also began to explore a transformative industrial process, additive manufacturing.

On Friday, December 8th Ahmed Ghoniem spoke on "*Fuels Beyond Fossil: Why, What and When?*" ... That is, why we will continue to need fuels in some sectors of the economy, options and technologies available now and on the horizon, and associated infrastructure requirements. Ahmed is the Ronald C. Crane Professor of Mechanical Engineering at MIT and directs the Center for Energy and Propulsion Research. On the road to decarbonize America's energy supply, electrification of major energy sectors including transportation, buildings and industry using low carbon electricity generated with carbon capture and storage or from renewables or nuclear, is being pursued deliberately and successfully.

However, some specific areas, for example long distance transportation (whether by air, water or ground), are more challenging to decarbonize with electrification alone, due to the lower energy density of electric batteries compared with liquid fuels. Two other difficult-to-electrify sectors are manufacturing processes such as steel and cement production that need high temperature heat; and long-term (days, weeks or months) energy storage. For these processes, energy-dense carbon-free chemicals like hydrogen and its carriers (such as ammonia), and biomass-sourced fuels (such as methane gas released from sewage treatment plants and landfills), are promising alternatives. The first are very chemically different from conventional fuels and thus pose engineering challenges. The second, while chemically identical to fossil fuels, are limited in supply and thus by themselves will be insufficient to meet the needs. Scaling to meet the rising demand for these new technologies poses challe
the necessary infrastructure will require major investment.

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On December 22, Professor Noam Eliaz spoke from Tel Aviv University (TAU) on "*Additive Manufacturing by Directed Energy Deposition – Opportunities and Challenges".* Noam is the Dean of The Iby and Aladar Fleischman Faculty of Engineering at TAU. Additive manufacturing (AM) or 3D printing constructs three-dimensional objects from polymers or metals following a computer-aided design model. This can be accomplished in a variety of processes. Directed energy deposition (DED) is a branch of AM in which a feedstock material (polymer, metal, etc) in the form of either a powder or a wire is delivered to a substrate on which an energy source (a laser beam, electron beam, or plasma/electric arc) is simultaneously focused, thus forming a small (sub-millimeter) melt pool to continuously deposit the material, layer by layer. Noam highlighted the main aspects of these processes and a gave many examples of their use in advanced materials design and synthesis, three-dimensional printing of complex items, and repair.

The New Year for the Forum begins on January 12th when Piotr Moncarz, Co-Founder of XGS Energy, will speak on *Geothermal Solutions.* This expands the discussion of ambient temperature geothermal networks by Zeyneb Magavi of HEET in October. High temperatures are needed for electricity generation while lower temperatures can be used in processes such as district heating/cooling.

All Forum presentations are recorded and can be streamed free on demand at the Wilson Forum's blog, https://jenksst.blogspot.com/ . Likewise, WinCAM broadcasts Forum presentations on Mondays and Fridays. To learn of upcoming speakers, you can check the Jenks website https://www.jenkscenter.org/ (events, daytime, Wilson Forum), or request to be placed on the roster for email notifications by sending an email placed on the roster for email notifications by sending an email to rlatanision@alum.mit.edu.

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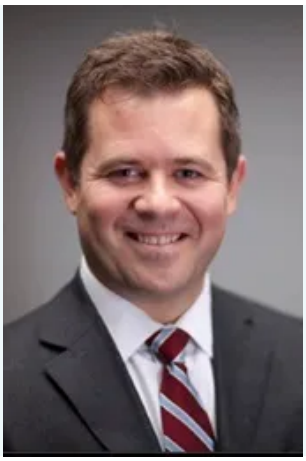

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Rep. Michael Day helps House colleagues pass sweeping energy affordability bill

The following was submitted by the Office of Rep. Michael S. Day: Rep. Michael S. Day and his colleagues in the House of Representatives recently passed energy affordability legislation that would result in over $9 billion in savings for utility ratepayers over the next 10 years. The bill maintains critical

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Public safety data How Winchester compares on firearms licenses in comparable Massachusetts communities Active licenses as of Jan. 25, 2025 — Source: Massachusetts Criminal History Systems Board License to carry firearms Firearms identification card Winchester and Marblehead are the focus communities. Peers selected based on comparable population size, demographics and suburban

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protections for renters, buyers

The following was submitted by the Office of Sen. Jason Lewis: State Sen. Jason Lewis joined his colleagues in the Massachusetts Senate to pass legislation that protects residents from discrimination in the housing market as the Trump administration abandons its enforcement of the federal Fair Housing Act. Illegal discrimination continues

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Celebrate Women's History Month with Girls Leading Change

The following was submitted by the Network for Social Justice: To mark Women's History Month and International Women's Day in 2026, the Network for Social Justice is collaborating with club leaders from Winchester High School and members of the Community Health team from La Colaborativa in Chelsea and

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Winchester School Committee candidates bring contrasting backgrounds to Thursday forum

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FEATURES

‘Chicago: Teen Edition’ dances onto the Winchester High School stage

By Talia Ho | Correspondent Fame. Fortune. And all that jazz. This spring, Winchester High School presents “Chicago: Teen Edition,” a bold musical that explores celebrity culture, media manipulation, and the cost of ambition. This iconic production is set in the 1920s. Performances will take place on March 13 and 14

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Ripley Chapel in Winchester presents ‘Syldason: You Are Welcome Here’

The following was submitted by the Ripley Chapel at First Congregational Church: On Friday, March 13, beginning at 7:30 p.m., live in-person and live streamed from the stunning Ripley Chapel at First Congregational Church, Winchester, 21 Church St., join in with Syldason, a duo concert featuring Sylvie Zakarian,

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